Prevalence and Clinical Characteristics of Migraine in University Students in Turkey

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Migraine is a common primary headache disorder and a significant health problem due to its frequency and accompanying morbidity which includes disability and loss of performance. It constitutes a significant burden both on the individual and society, and thus results in lack of productivity, limitation of activity, and impairment of quality of life (Michel et al. 1977; Von Korff et al. 1998).

Various instruments have been developed in order to assess migraine-related disability. Among these, Migraine disability assessment scale

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(MIDAS) questionnaire is a widely-used, reliable, and validated one and has been shown to be simple, highly consistent, and useful for therapeutic decisions. This instrument is a five-item questionnaire developed to measure headache-related disability and improves doctor-patient communication about the functional consequences of migraine (Lipton and Silberstein 2001; Stewart et al. 1999, 2001, 2003). Recently, a Turkish version of the MIDAS questionnaire has been developed as a clinical and research tool on Turkish patients (Ertas et al. 2004; Gedikoglu et al. 2005).

Although numerous population-based migraine studies have been conducted in the general population, currently, there are only limited epidemiological data obtained from the Turkish population (Kececi and Dener 2002; Ozge et al. 2003; Boru et al. 2005). Moreover, no study has previously been conducted on university students in Turkey. This study aims to assess the prevalence of migraine among university students in a Turkish city and determine migraine-related disability by using a standardized tool, the MIDAS questionnaire, and medical consultation/treatment in during attacks.

**MATERIALS AND METHODS**

*Study design and setting*

This cross-sectional population-based study was conducted on students of Afyon Kocatepe University and carried out in two stages. The city of Afyon has a total population of 812,000 people. Afyon Kocatepe University has a total number of 10,000 students. Students from different semesters and faculties were included in the study. The students who were not present in the school for any reason during the data-collection period were excluded. No follow-up was conducted. Afyon Kocatepe University, School of Medicine ethics committee approved this study with human subjects. In the first stage, the students were firstly visited in their schools and asked to complete the standardized questionnaire for migraine diagnosis. The first part of the questionnaire concerned demographical characteristics and the second part related to the diagnostic criteria of the International Headache Society (IHS) for migraine (Headache Classification Committee of the International Headache Society 1988). Questionnaires completed by the students were evaluated using a checklist. The purpose of this evaluation was to determine whether a student was a migraine sufferer or not. In this questionnaire, the students were also asked about medical consultations and medicines used during attacks.

The second stage, the migraine diagnosis was confirmed through a direct interview in the second visit and then the MIDAS questionnaires were given to the students considered as possibly having migraine at the second visit in order to determine failures due to migraine. A Turkish version of the MIDAS questionnaire was used in this survey. It was reported to be equivalent to the English version of the MIDAS in terms of internal consistency, test-retest reliability, and validity (Ertas et al. 2004; Gedikoglu et al. 2005). MIDAS is a questionnaire that measures headache-related disability simply and easily by counting the number of days of lost and limited activity due to migraine. Five questions assessing their days lost due to migraine over a 3-month period. The MIDAS questionnaire captures information on migraine-related disability in terms of time missed from work/study, household work, and leisure activities on days when headache was experienced. Total lost days are summed and categorized into four severity grades. Two unscored questions assess headache frequency and pain intensity (Stewart et al. 1999, 2003). The MIDAS is used to assign a disability grade indicating overall intensity of illness during a 3-month recall period; grade I (minimal or infrequent disability, score 0-5); grade II (mild or infrequent disability, score 6-10); grade III (moderate disability, score 11-20); and grade IV (severe disability, score ≥ 21) (Stewart et al. 1992). In the last part of the questionnaire, the students were asked to grade the intensity of the pain (0, no pain; 10, very severe pain).

*Statistical analysis*

Statistical analysis was performed by using the Statistical Package for the Social Sciences (SPSS), version 11.5. The evaluation of relationship between the prevalence of migraine and the properties of headache was done by chi-square ($\chi^2$) test. The relationship between clinical characteristics and headache severity was assessed by Spearman rank correlation analysis. Ninety-five percent confidence intervals (95%CI) were calculated using a binominal approximation of the Poisson distribution.

**RESULTS**

The number of subjects in the initial sample...
was 3,430. A total of 1,029 students responded to questionnaire and were included in the study. The response rate of this study was 30% without a follow-up. Of 1,029 students, 705 were female (mean 20.5 ± 2.9 years, range 18 to 29) and 324 were male (mean 21.2 ± 1.7 years, range 18 to 34). The gender of participants reflects the university population. One thousand and twenty-nine students in this university population were interviewed for migraine prevalence. Migraine was found in 128 (99 females and 29 males) students. The migraine prevalence in university students was found to be as 12.4% (14% in females and 8.9% in males). The female to male ratio was found to be as 1.5/1. The mean ages were 20.6 ± 1.7 and 21.3 ± 3.0 years for females and males, respectively. Mean duration of disease was 4.2 ± 2.5 and 4.4 ± 3.1 years in women and men, respectively. The number of attacks per month was 5.0 ± 2.5 in women and 4.8 ± 3.5 in men. Mean pain intensity was 6.2 ± 1.4 in women and 6.5 ± 1.5 in men. No significant difference was found in regard to disease duration, frequency of the attacks, or pain intensity between female and male migraine patients. Demographic and clinical characteristics of the students diagnosed as having migraine were presented on Tables 1.

The MIDAS showed that 11 students (8.6%) had minimal disability (grade I) with a mean score of 3; 30 (23.4%) had mild (grade II) with a mean score of 8; 34 (26.6%) had moderate (grade III) with a mean score of 16; and 53 (41.4%) had severe (grade IV) with a mean score of 23. About two-thirds of the patients had moderate to severe academic failure. No difference was found between men and women with regard to their MIDAS scores. All these data were summarized on Table 2.

In responses to questions about treatment during the attacks, we found that all the students with migraine were using some medication. It was found that 104 students (81.3%) were using non-prescribed drugs during headache attacks, while remaining 24 (18.8%) students were using

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**Table 1. Demographic and clinical characteristics of patients with migraine**

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>99</td>
<td>29</td>
<td>128</td>
</tr>
<tr>
<td>Age (years)</td>
<td>20.6 ± 1.7*</td>
<td>21.3 ± 3.0</td>
<td>20.8 ± 2.1</td>
</tr>
<tr>
<td>Range of age (years)</td>
<td>18 - 29</td>
<td>18 - 34</td>
<td>18 - 34</td>
</tr>
<tr>
<td>Married/single</td>
<td>2 / 97</td>
<td>1 / 28</td>
<td>3 / 125</td>
</tr>
<tr>
<td>Duration of disease (years)</td>
<td>4.2 ± 2.5*</td>
<td>4.4 ± 3.1</td>
<td>4.2 ± 2.7</td>
</tr>
<tr>
<td>Number of attack/month</td>
<td>5.0 ± 4.4</td>
<td>4.8 ± 3.5</td>
<td>4.9 ± 4.2</td>
</tr>
<tr>
<td>Pain intensity</td>
<td>6.2 ± 1.4</td>
<td>6.5 ± 1.5</td>
<td>6.2 ± 1.4</td>
</tr>
</tbody>
</table>

* Values are mean ± S.D.

**Table 2. MIDAS grading of students with migraine**

<table>
<thead>
<tr>
<th>MIDAS Grade</th>
<th>Female (%)</th>
<th>Male (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>8 (6.3)</td>
<td>3 (2.3)</td>
<td>11 (8.6)</td>
</tr>
<tr>
<td>II</td>
<td>23 (18)</td>
<td>7 (5.4)</td>
<td>30 (23.4)</td>
</tr>
<tr>
<td>III</td>
<td>28 (21.9)</td>
<td>6 (4.6)</td>
<td>34 (26.5)</td>
</tr>
<tr>
<td>IV</td>
<td>40 (31.3)</td>
<td>13 (10.1)</td>
<td>53 (41.4)</td>
</tr>
</tbody>
</table>

**Table 3. Drug option characteristics of patients with migraine**

<table>
<thead>
<tr>
<th>Drugs</th>
<th>Number (%) of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple analgesics</td>
<td>38 (29.6)</td>
</tr>
<tr>
<td>Analgesic/anti-inflammatory</td>
<td>57 (66.5)</td>
</tr>
<tr>
<td>preparations</td>
<td></td>
</tr>
<tr>
<td>Triptan group</td>
<td>5 (3.9)</td>
</tr>
<tr>
<td>Ergot preparations</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>
the drugs with a directory of a physician. Among the students with migraine, 38 (29.6%) were using simple analgesics during the attacks, while 32 (25.0%) were using combined analgesics, 53 (41.4%) were using analgesic/anti-inflammatory drugs, and 5 (3.9%) were using triptan group (Table 3).

**DISCUSSION**

To our knowledge, migraine has previously not been the subject of an investigation in university students in Turkey. This is the first prevalence study conducted on university students in Turkey. In addition for the first time, we used a Turkish translation of the MIDAS questionnaire in defining the severity of migraine and preferences of treatment in Turkish population.

Epidemiological studies have suggested that age, sex, genetic characteristics, and socio-cultural differences affect the prevalence of migraine (Stewart et al. 1992; Henry et al. 2002). Several international studies using the IHS diagnostic criteria have shown that the lifetime prevalence of migraine was found to be as 4-8% in males and 11-25% in females in general population (Rasmussen et al. 1991; Stewart et al. 1992; Henry et al. 1992; MacGregor et al. 2003). The lifetime prevalence of migraine was found to be as 7.9% in males, 11.1% in females (Kececi and Dener 2002) and 19.9% in males, and 29.3 in females (Celik et al. 2005) among general population in Turkey. The migraine prevalence in Turkish female was higher than that of reported in previous studies from Europe and United States (Celik et al. 2005).

We found the migraine prevalence to be as 12.4% (14.0% in women and 8.9% in men) in university students. It is the our limitation that we have not determined the rates of students with or without migraine whose were not present in their class during this survey. Notwithstanding this result was similar to the prevalence of migraine in Turkey reported by Kececi et al. (2002) but were lower than that reportedly Celik et al. (2005).

The previous studies conducted on university students in various countries have shown that the overall prevalence of migraine ranges from 2.4% in Greece (Mitsikostas et al. 1996) to 12.2% in Oman (Deleu et al. 2001), 20.8% in Spain (Muniz et al. 1995), 25% in Brazil (Bigal et al. 2001) and 33% in Brazil (Sanvito et al. 1996). Our prevalence number of migraine was placed an intermediate position among the rates of these countries.

The MIDAS questionnaire may provide a practical tool to help suggest treatment recommendations for migraine patients (MacGregor et al. 2003; Lipton and Silberstein 2001) and facilitates communication between physicians and patients to enable greater understanding of the impact of migraine (Dodick et al. 2002). In an epidemiological study conducted in France, distribution of the MIDAS grades was found to be as 74.7% Grade I, 13.3% Grade II, 7.7% Grade III, and 4.3% Grade IV (Henry et al. 2002). However, in an international study, the global Migraine and Zolmitriptan Evaluation (MAZE) survey, the migraine patients with grade III or IV was found to be as 54% in France, 47% in England, 48% in Germany, 56% in the USA, and 61% in Italy (MacGregor et al. 2003). Among our students with migraine, 26.6% had Grade III and 41.4% had Grade IV disability. These findings were consistent with the findings of the MAZE survey.

Our students had experienced 5 attacks within a month and pain intensity was moderate to severe. Bigal et al. (2001) found the number of attacks was 4.5 for per month. This result was similar to our attack numbers within a month.

Despite severe disability findings, only 20% of the students received medical help, whereas 80% of them were using nonprescription drugs during attacks. Similarly, Zencir et al. (2004) reported that only 29.1% of the school children with migraine was visited a doctor for headache in Turkey. The MAZE study revealed that about half of the patients (41% to 63%) did not get medical help during their headache attacks (Lipton and Silberstein 2001). It was also very interesting that the use of drugs from the triptan group was minimal (3.9%) and ergot preparation was not used in any of our cases. Triptans and ergot preparations are a class of drug that have been designed to specifically treat the pain and associated symptoms of migraine. Half of the patients
were trying to relieve their headache attacks with simple or combination preparations. MAZE study reported that the percentages of the patients with migraine taking triptan and ergot preparations to relieve their headache attacks were 10% and 5%, respectively (Lipton and Silberstein 2001).

In conclusion, this is the first study of migraine with the operational diagnostic IHS criteria and Turkish translation of the MIDAS questionnaire in defining the severity of migraine and preferences of treatment in a Turkish university population. We show that two-thirds of university students with migraine have moderate to severe disability leading to educational failure. Many university students with migraine do not consult a physician and continue to treat their headaches with simple analgesics. In the present study, the percentage of students who were given prescriptions for drug treatment by their doctors was lower than in other studies. Global educational programs may be required for patients to recognize the importance of effective migraine treatment. Informing patients about the disease through informative programs is not only an important step in treatment of migraine attacks, but also reduces the disability from migraine.

Acknowledgments

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References


Stewart, W.F., Lipton, R.B., Whyte, J., Dowson, A., Kolodner,


